

U.S. Patent Application Serial No. 10/699,832  
Amendment filed July 23, 2007  
Reply to OA dated April 25, 2007

### **REMARKS**

Claims 1, 3, 4, 12 and 13 are pending in this application. Claim 1 is amended herein. Upon entry of this amendment, claims 1, 3, 4, 12 and 13 will be pending. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims is discussed below.

**Claims 1, 3, 4, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office Action page 2)**

The rejection is overcome by the amendments to the claims.

The Examiner states that the "another area" should apparently form the optical device rather than the electronic device, and that it is unclear where the optical device is located.

Claim 1 has been amended to clarify that the recited "another area" is "locally located and formed with the optical device." That is, the claim recites two areas of the SOI substrate, one associated with the electronic device and another associated with the optical device, of the electronic-optical united device. The claim has also been amended: "a layer of silicon carbide metamorphosed by locally carbonizing the corresponding area in of a surface the SOI substrate," to clarify that carbonized area is of a surface of the SOI substrate.

Reconsideration of the rejection is therefore respectfully requested.



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**Claims 1, 3, 4, 12 and 13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Linthicum, of record. (Office Action page 2)**

Reconsideration of the rejection is respectfully requested in view of the amendments to the claims.

The Examiner states that "the new limitations do not structurally distinguish over Linthicum because the claim is vague and indefinite of exact structure and SOI is disclosed in Linthicum."

In response, Applicant has amended claim 1 to clarify the recited structure, as discussed above in regard to the rejection under 35 U.S.C. 112, second paragraph. Specifically, the amendment to claim 1 clarifies that the SOI substrate has two areas, "one area" formed with the electronic device and "another area" formed with the optical device.

Applicant again submits that Linthicum does not disclose or suggest that an electronic and optical device exist on one and the same substrate, and that claim 1, as amended, is not anticipated by and is not obvious over Linthicum.

**Claims 1, 3, 4, 12 and 13, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto ([sic], should be Yamoto), JP 2001-044124 in view of Linthicum. (Office Action page 3)**

The Examiner cites the Yamoto reference for teaching GaN on SiC on Si, but states that Yamoto does not disclose the SOI substrate.



In Yamoto, an SiC epitaxial layer 2 is formed on a silicon substrate 1 using silane and propane gases. In other words, the SiC epitaxial layer 2 is formed by a **crystal growth method**. The abstract of Yamoto states that silicon carbide is “crystal-grown” on silicon substrate 1 to form the SiC epitaxial layer 2.

In contrast, in claim 1, “a layer of silicon carbide metamorphosed by locally carbonizing the corresponding area of a surface the SOI substrate.” That is, the present invention adopts a **carbonization** method for forming the monocrystalline silicon carbide (i.e., the surface silicon layer of the silicon substrate 100 is metamorphosed into monocrystalline silicon carbide by heating the atmospheric temperature inside a film-forming chamber to a temperature between 1200°C and 1405°C while streaming hydrocarbon-based gas into the chamber).

Yamoto does not disclose or suggest the “locally carbonized” limitation of the present claims. Moreover, Yamoto does not appear to disclose or suggest that an electronic and optical device exist on one and the same substrate.

Moreover, Applicant submits that it is not completely clear from the stated rejection how Yamoto is being combined with Linthicum. The Examiner states: “Yamamoto [sic] teaches a GaN on SiC on Si. The difference is SOI substrate. The difference is not patentable because Linthicum teaches SOI for GaN on SiC on Si ....” The Examiner may be stating that Linthicum is being used to modify Yamoto to have an SOI substrate. However, Applicant submits that even if Yamoto were modified to have an SOI substrate, Yamoto would not meet the limitations of the present claims, as discussed above.



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Applicant therefore submits that claims 1, 3, 4, 12 and 13 are not obvious over Yamoto and Linthicum, taken separately or in combination.

Reconsideration of the rejections is therefore respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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